KY-WRAM Rating Form Version 3.0	# Kentucky Wetland Rapid Assessment Method (KY-WRAM) Kentucky Division of Water

Instructions:

The Kentucky Wetland Rapid Assessment Method is intended for use as a tool for functional assessment. The method supplements, but does not replace information used in the existing regulatory process for wetlands, such as delineation. It is intended for use on all types of wetland in Kentucky. This is a rapid assessment method with combined field and office prep time (GIS) of no more than 8 hours. This method does not replace quantitative assessments such as Indices of Biotic Integrity.

The Rater is *STRONGLY URGED* to read the Guidance Manual for using the Kentucky Wetland Rapid Assessment Method (KY-WRAM) for further elaboration and discussion of the questions below prior to using the rating forms. It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the KY-WRAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to the Scoring Boundary section in the Guidance Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

The KY-WRAM was developed by a Technical Working Group of state and federal agencies and Eastern Kentucky University. This method is modeled off of the Ohio Rapid Assessment Method (ORAM) with modifications influenced by North Carolina and Michigan's wetland rapid assessment methods.

The total score has been shown to be consistent year round; however, the ideal timeframe for use of this method is during the plant growing season when plant species can be reliably identified. It should be noted that the individual metrics may be scored differently between the seasons because certain metrics are easier to evaluate during the growing season (e.g., highly-invasive plant species coverage, special wetlands, vegetation components) and non-growing season (e.g., substrate/soil disturbance, hydrology).

Although the form may be filled out in a linear manner it is expected that the Rater will make note of wetland characteristics throughout the entire field evaluation. For example, alterations to the hydrology, substrate, or habitat, plant species encountered, and the amount of microtopography features present. This is an important step in evaluating the method properly.

Background Information

Name of wetland:	Evaluator name:
Date of evaluation:	Phone number:
Lat/Long coordinates: (decimal degrees)	Email:
County:	Evaluator affiliation and address:
USACE/WQC Project ID:	
Precipitation within the last 48 hours? Circle: Yes No	

Attachments: Complete and check (√) each box

- ☐ Attach map of wetland location. Use county road map or USGS 7.5 minute topographic map with location indicated.
- ☐ Attach color photographs of wetland including landscape shot of entire wetland (if possible), vegetation components, habitat types, hydrologic features, and other relevant site features.
- ☐ Attach prints of satellite imagery used for buffer and connectivity metrics. This should include multiple prints at appropriate scales. Prints should include labeled marks of the following: site location, Wetland Assessment Area, plant communities within the wetland, streams, 100 year floodplains, ponds, patches of open water, relevant upland features, and location of modification to wetland. Also include north arrow and scale of each print.

Wetland Sketch (include north arrow, hydrologic features, plant communities and other habitat features)

Actual Wetland Size (indicate units):

Wetland Type (indicate NWI & HGM classifications):

Background Information (continued)

Narrative Discussion: List any additional site information or features that may be relevant to evaluation of the wetland. See Guidance Manual for the types of information that should be included here. Scoring comments should be placed on page 13.

Narrative Rating

1. U.S. Fish and Wildlife Service (USFWS) Critical Habitat

- Is any part of the wetland located within the same HUC-12 watershed designated as Critical Habitat? (see Narrative Discussion) ☐ Yes ☐ No
- Does any federal (G1/G2) or state-listed T/E plant or animal species (S or S2) occur within the wetland's HUC-12 watershed? (see Narrative Discussion) ☐ Yes ☐ No
- Does any S3 (state species of concern) species occur within the wetland's HUC-12 watershed? (see Narrative Discussion) ☐ Yes ☐ No

2. Rare Wetland Community Type

- Does the wetland include a KSNPC rare wetland community? ☐ Yes ☐ No
- If YES, list the community type, the size of the rare community, and the percent of the wetland area.

3. Scenic, Recreational, and Cultural Value

- Does the wetland have scenic, recreational, or cultural value? (see Narrative Discussion) ☐ Yes ☐ No

Comments:

Site:	Rater(s):	Date:

Metric 1. Wetland Size and Distribution – Maximum 9 points.

1a. Wetland Size – Maximum 6 points. Using GIS, estimate the size of the wetland (i.e., Wetland Assessment Area). **Select one size class.**			**Score**
Sources/assumptions for size estimate (list):	≥ 50 acres	**6 pts**	
	25 acres to <50 acres	**5 pts**	
	10 acres to <25 acres	**4 pts**	
Actual Wetland Size Estimate: _____ acres	3 acres to <10 acres	**3 pts**	
	0.3 acre to <3 acres	**2 pts**	
Wetland area proposed to be impacted: _____ %	0.1 to 0.3 acre	**1 pts**	
	< 0.1 acre	**0 pts**	

1b. Wetland Scarcity – Maximum 3 points. Use USFWS National Wetlands Inventory (NWI) maps, aerial imagery, and other information to estimate percentage of wetland area remaining within a 2-mile radius from the wetland's center (use ArcGIS or by visual estimate). For this submetric, areas of open water within lakes, streams, rivers, and ponds (PUBX), etc. should be excluded. **Select the most appropriate category below.**		**Score**
0 to 5% of surrounding 2-mile radius is wetland	**3 pts**	
6 to 20% of surrounding 2-mile radius is wetland	**2 pts**	
>20% of surrounding 2-mile radius is wetland	**1 pt**	

Metric 1 Total: add 1a & 1b **(9 points max.)**	

Wetland Size Estimate + Metric to English Conversion							
acres	hectare	feet^2	ft on side	yard^2	yd on side	m^2	m on side
50	20.2	2,177,983	1,476	241,998	492	202,000	449
25	10.1	1,088,992	1,044	120,999	348	101,000	318
10	4.1	435,596	660	48,340	220	41,000	203
3	1.2	130,679	362	14,520	121	12,000	110
0.3	0.12	13,067	114	1,452	38	1,200	35
0.1	0.04	4,356	66	484	22	400	20

Site:	Rater(s):	Date:

Metric 2. Buffers and Intensity of Surrounding Land Use – Maximum 12 points.
**Use color maps for all metric 2 sub-metrics.

2a. Average Buffer Width around the Wetland's Perimeter – Maximum 4 points.
Draw the cardinal and ordinal lines from the centroid of the wetland and calculate average buffer width. Select only one score.

Buffers Include:	**Non-Buffers Include:**	
☐ shrubland, forest of any age, natural grassland, natural rock outcrops and cobble bars ☐ abandoned row crop field (vegetated & naturalizing) ☐ hay field (non-row crop) ☐ lightly managed forest (selectively logged) ☐ lightly managed parkland ☐ other wetland, lake, or river ☐ Single-track dirt roads (non-motorized vehicle trails that are not sources of sediment)	☐ lawns, golf courses, manicured parkland ☐ residential, commercial, industrial ☐ roadways (including shoulders), parking lots ☐ railroad tracks/beds ☐ active agriculture: row crop field ☐ conservation tillage, grazed pasture, utility right-of ways ☐ clear-cutting or heavily managed forest, mining, construction activity ☐ gravel or double-track dirt roads (includes ATV trails)	**Score**

Wide Buffer Width: 150 feet around the perimeter	**4 pts**	
Medium Buffer Width: 75 to <150 feet around the perimeter	**3 pts**	
Narrow Buffer Width: 25 to <75 feet around the perimeter	**2 pts**	
Very Narrow Buffer Width: 0 (no buffer) to <25 feet around the perimeter	**0 pts**	

2b. Intensity of Surrounding Land Use within 1,000 feet of the Wetland – Maximum 4 points.
If a land use type in not listed, use the examples below to determine the category. Write in additional land use types here and indicate the land use category you assigned:

Land Use Category	Estimate the percent coverage comprised by each of the four categories of land use below. Sum the points from all dominant land use categories (i.e., dominant is ≥25% total per category) and then average the score.				
	Land Use Types:		Estimate % of each category **here** ↓		**Score**
Very Low:	☐ mature growth forest	☐ other wetland, lake, stream, river		**4 pts**	
Low:	☐ shrubland/young forest ☐ hay field (non-row crop) ☐ lightly managed parkland	☐ old field ☐ single track and two track dirt roads ☐ one-lane paved road		**2 pts**	
Moderately High:	☐ residential & lawns ☐ manicured parkland ☐ golf course ☐ grazed pasture ☐ utility right-of-way	☐ conservation tillage ☐ recent logging and clear-cut (<5 years) ☐ two-lane road ☐ railroad ☐ man-made lake		**1 pts**	
High:	☐ commercial, industrial ☐ high-density residential ☐ heavily grazed pasture ☐ row crop field	☐ multi-lane paved roadway ☐ construction activity ☐ parking lot ☐ hazardous areas (mining, landfills, brownfields, etc.)		**0 pts**	

For scores ending in 0.5, round up

2c. Connectivity to Other Natural Areas – Maximum 4 points.
Use GIS with field adjustment if necessary. Evaluate the wetland's connectivity to habitat patches in the greater landscape either contiguously or via a corridor (≥ 30 ft wide) of natural vegetation. Habitat patches and corridors must be natural terrestrial habitat (i.e., shrubland, forest, natural rock outcrops, cobble bars, wetlands, and etc.). Large streams and rivers, roads, and "non-natural" habitat such as grassland are barriers that end patches and corridors.

Connected at:	**Circle all categories that apply but report only the highest point value**		**Score**
Up to 2500 ft. (can be more)	>50% of area is patch	**4 pts**	
	<50% of area is patch *(minimum patch size requirement = 10 acres)*	**2 pts**	
Up to 1000 ft.	>25% of area is patch	**2 pts**	
	<25% of area is patch	**0 pts**	

Metric 2 Total: add 2a – 2c **(12 points max.)**	**Sub-total:**

Site:	Rater(s):	Date:

Metric 3. Hydrology – Maximum of 29 points.

3a. Input of Water From an Outside Source – Maximum 10 points. Select all that apply.		Score
Surface Water: Inundation from a lake, pond, or stream overbank flow at least yearly (in a typical year)	**4 pts**	
Groundwater: Score only if you observe direct evidence of groundwater (e.g. including, but not limited to, a spring or seep)	**4 pts**	
Precipitation: All wetlands receive some portion of their hydrological budget from this	**2 pt**	

3b. Hydrological Connectivity – Maximum 6 points. Select all that apply.		Score
100-Year Floodplain or abutting a smaller stream/creek. As defined in FEMA maps or NRCS alluvial soil maps if FEMA maps are unavailable.	**2 pts**	
Between a Stream/Lake/Pond and Human Land Use. The wetland is located between a surface waterbody and any human land use, such that run-off from the adjacent land use could flow through the wetland before it discharges into the surface waterbody.	**2 pts**	
Wetland Complex. The wetland is part of a large scale (10+ acres) complex of *other* wetlands within 2500' of the assessment area boundary, with small areas of unmanicured/undeveloped vegetated uplands in between.	**2 pts**	

3c. Duration of Inundation/Saturation – Maximum 4 points.

Select the option(s) below that best describe(s) the dominant hydrologic characteristic of the wetland. "Dominant" is defined as comprising at least 25% of the wetland area. If separate areas have distinctly different hydrologic characteristics, select all that apply and average the points. Use US ACE hydrology indicators for assistance. Use NRCS growing season criteria to determine the growing season length for the county the wetland is in. If the wetland is in the NWI database, the Rater may consult the hydrology modifiers listed in the Classification Code for assistance.

			Score
Semi- to Permanently Inundated/ Saturated	(75 – 100% of growing season)	**4 pts**	
Regularly Inundated/ Saturated	(25 – 75% of growing season)	**3 pts**	
Seasonally Inundated	(12.5 – 25% of growing season)	**2 pts**	
Seasonally Saturated in the Upper 12 Inches of Soil	(12.5 – 25% of growing season)	**1 pt**	

3d. Alterations to Natural Hydrologic Regime – Maximum 9 points.

Evaluate the intactness of the natural hydrologic regime of the wetland. Check all forms of observed hydrologic alteration(s) that are potentially influencing the wetland (e.g. alteration may be outside of the wetland). Keep in mind that some alternations do not need to be actively maintained to have permanent negative effects.

A hydrologic alteration may also impact the Substrate/Soil (submetric 4a) and/or Habitat (submetric 4b).

Low	High	Alteration	Low	High	Alteration
☐	☐	ditch(es) in or near the wetland	☐	☐	stormwater inputs (addition of water)
☐	☐	tile(s) in or near the wetland	☐	☐	non-stormwater discharge(s)
☐	☐	dike(s) in or near the wetland	☐	☐	road bed(s)/RR grades(s) in or near the wetland
☐	☐	weir(s) in or near the wetland	☐	☐	dredging activities in or near the wetland
☐	☐	stream channelization	☐	☐	filling/grading activities in or near the wetland
☐	☐	other(s) (specify)	****only consider anthropogenic alterations (e.g. exclude beaver activity)**		

Select an option below that best describes the extent of wetland hydrology alteration. You may select **adjoining** options and average the points when appropriate.		Score
No Hydrologic Alterations Apparent	**9 pts**	
The wetland hydrology appears to have been altered, but the wetland was resilient to alterations and the functions are intact or near optimal level.	**7 pts**	
The wetland hydrology was altered but appears to retain some degree of functions.	**3 pts**	
Alterations are severely impacting the hydrology of the wetland.	**1 pt**	

Metric 3 Total: add 3a – 3d **(29 points max.)**	**Subtotal**

Site:	Rater(s):	Date:

Metric 4. Habitat Alteration and Habitat Structure Development – Maximum 20 Points.

*** A substrate or habitat disturbance may also negatively impact hydrology (Submetric 3d) and substrate/habitat (Submetric 4a/4b).*

4a. Substrate/Soil Disturbance – Maximum 4 points.

Evaluate whether a physical disturbance has occurred to the soil and surface substrates of the wetland. Check all possible forms of observed substrate/soil disturbances **within the wetland** below.

Low	High	Alteration	Low	High	Alteration	Low	High	Alteration
☐	☐	filling	☐	☐	human-induced erosion or exposure	☐	☐	plowing, disking
☐	☐	grading	☐	☐	human-induced sedimentation or burial	☐	☐	intensive grazing (hooves)
☐	☐	logging	☐	☐	dredging (includes excavating)	☐	☐	off-road vehicle use
☐	☐	construction	☐	☐	vehicle use	☐	☐	other(s) (specify)

Select an option below that best describes the extent of wetland soil alteration. You may select **adjoining** options and average the points when appropriate.		**Score**
No Substrate or Soil Disturbance Apparent	**4 pts**	
The wetland substrate or soil appears to have been altered, but the wetland was resilient to alterations	**3 pts**	
The wetland substrate or soil was altered but was somewhat resilient to alterations	**2 pts**	
The wetland substrate or soil was altered and was not resilient to alterations	**1 pt**	

4b. Habitat Alteration – Maximum 9 points.

Evaluate the intactness of the natural habitat and check all possible observed habitat alterations **within the wetland** below.

Utilize aerial photography and field evidence to determine if any habitat alteration has occurred. Determine the approximate pre-disturbance extent of vertical and horizontal habitat attributes (e.g., large woody debris, plant species diversity, hummocks, patchiness, niche diversity, etc.). Disregard changes attributable to wetland community succession or other natural processes.

Low	High	Alteration	Low	High	Alteration	Low	High	Alteration
☐	☐	barriers (e.g. road bed(s)/RR grades(s))	☐	☐	large woody debris (LWD) removal	☐	☐	sedimentation
☐	☐	tree plantation	☐	☐	grazing	☐	☐	dredging
☐	☐	selective cutting	☐	☐	rutting	☐	☐	filling/grading
☐	☐	clearcutting	☐	☐	Herbicide or chemical treatment	☐	☐	plowing/disking/farming
☐	☐	mowing or shrub removal	☐	☐	nutrient enrichment, e.g., nuisance algae	☐	☐	other(s) (specify)

Select an option below that best describes the extent of wetland habitat alteration. You may select **adjoining** options and average the points when appropriate.		**Score**
No Habitat Alterations Apparent	**9 pts**	
The wetland habitat appears to have been altered, but the wetland was resilient to alterations and the functions are intact or near optimal level	**7 pts**	
The wetland habitat was altered but appears to retain some degree of functions	**3 pts**	
The alterations are severely limiting habitat function of the wetland	**1 pt**	

4c. Habitat Reference Comparison – Maximum 7 points.

Determine an overall qualitative rating of the wetland habitat quality in comparison to the best of its type remaining (i.e., any ecologically and/or hydrogeomorphically similar wetland habitat). Do **not** consider the best example for an area (i.e., compare, for example, emergent riverine wetlands to other emergent riverine wetlands). For instances where there is a clear distinction between wetland areas in terms of habitat structure development, the Rater may double-check non-adjoining options, but justification is required. See Guidance Manual for additional assistance.

Select an option below that best describes the wetland habitat structure development. If unclear which of two options is more appropriate, select **adjoining** options and average the points.			**Score**
Excellent:	Wetland appears to represent the best of its type.	**7 pts**	
Good:	Wetland appears to be a good example of its type	**5 pts**	
Fair:	Wetland appears to be a fair example of its type.	**3 pts**	
Poor:	Wetland is a poor example of its type	**1 pt**	

Metric 4 Total: add 4a – 4c **(20 points max.)**	**Subtotal**

Site:	Rater(s):	Date:

Metric 5: Special Wetlands — Maximum of 10 pts.

Metric 5: Special Wetlands — Maximum of 10 pts.
Check all that apply and score as indicated.

Numbers in brackets **[]** indicate point values.

Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

5a. Regulatory Protection / Critical Habitat — **Score**

- ☐ Known occurrence of federally threatened/endangered species or designated critical habitat within a HUC-12 watershed **[10]**.
- ☐ Known occurrence of other rare species with state rank S1 ***[10]**, S2 ***[5]**, S3***[3]**; *use higher rank if there are mixed ranks or qualifiers (i.e., S1/S2 [10] and S2/S3 [5)]. Exclude records which are only "historic" (i.e., surveys have documented that the species is no longer there) within HUC-12 watershed.

5b. High Ecological Value / Ranked Communities (See manual and key for ranked list of communities) — **Score**

- ☐ Appalachian seep/bog (S1S2) **[8]**
- ☐ Bottomland marsh (S1S2) **[8]**
- ☐ Bottomland slough OR Coastal Plain Slough (S2) **[5]**
- ☐ Calcareous seep/bog (S1) **[10]**
- ☐ Coastal Plain forested acid seep (S1) **[10]**
- ☐ Cypress (tupelo) swamp (S1) **[10]**
- ☐ Sinkhole/depression marsh (S1S2) **[8]**
- ☐ Sinkhole/depression pond (S2) **[5]**
- ☐ Wet depression/sinkhole forest (S1S2) **[8]**
- ☐ Wet bottomland hardwood forest (S2) **[5]**
- ☐ Wet meadow (S1) **[10]**
- ☐ Wet prairie (S1) **[10]**

5c. Low-Quality Wetland — **Score**
Check all that apply, but maximum score is -10 points:

- ☐ Wetland is < 1 acre and has >75% cover of invasive plants **[-10]**
- ☐ Wetland is <1 acre and is nonvegetated mined/excavated land **[-10]**
- ☐ Wetland is <1 acre and is a constructed stormwater treatment pond **[-10]**

Metric 5 Total: add 5a – 5c **(10 points max.)***	**Subtotal**

***Score can be negative**

Site:	Rater(s):	Date:

Metric 6. Vegetation, Interspersion, and Habitat Features – Maximum 20 points.

****For each Metric 6 sub-metric, do NOT consider the wetland type being assessed, especially for plant species diversity in 6a.**

6a. Wetland Vegetation Components – Maximum 9 points.

Determine the Qualitative Cover Score of each Vegetation Component. Using the Scoring Table below, start on the left and proceed to the right, until a point value is obtained for each Component. Vegetation Components may exist in overlapping layers, e.g., significant areas of shrub/sapling and/or herbaceous may exist under a forest canopy. Only groups of trees, clusters of shrubs, or dense patches of herbaceous stems may count toward area coverage. Do not include lone trees, shrub/saplings, or sparse patches of herbaceous stems. See Submetric 6c for list of Kentucky's most invasive wetland species. Check the box on the right to indicate how the score was determined for each Vegetation Component (i.e., F, S or H).

Qualitative Cover Scoring Table

Habitat component - *Check all that apply* →					F	S	H
Vegetation Component is **>0.1** acre	**>**25% of wetland area	Native species dominate the coverage	High native diversity	3 pts			
			Moderate to low native diversity	2 pts			
		Invasive or non-native species dominate the coverage	Moderate to high native diversity	2 pts			
			Low native diversity	1 pt			
	<25% of wetland area	Native species dominate the coverage	Moderate to high native diversity	2 pts			
			Low native diversity	1 pt			
		Invasive or non-native species dominate the coverage	Moderate native diversity	1 pt			
			Low native diversity	0 pts			
Vegetation Component is **<0.1** acre	**>**25% of wetland area	Native species dominate the coverage	Moderate to high native diversity	2 pts			
			Low native diversity	1 pt			
		Invasive or non-native species dominate the coverage		0 pts			
	<25% of wetland area			0 pts			

Write in "absent" (don't score it a zero) if habitat is not present.

Forest Overstory Component (F) – **Maximum 3 points**. Qualitative cover score derived from table. **Score**

Forested wetland areas are characterized by a group of trees at least 3 inches in DBH, regardless of height.

Shrub/Sapling Component (S) – **Maximum 3 points**. Qualitative cover score derived from table. **Score**

Shrub/Sapling wetland areas are dominated by clusters of woody plants less than 3 inches in DBH and greater than 3.28 feet in height. Species include true shrubs, young trees, and stunted trees.

Herbaceous Component (H) – **Maximum 3 points**. Qualitative cover score derived from table. **Score**

Herbaceous wetland areas are dominated by dense patches of erect, non-woody plants, regardless of size, and woody plants less than 3.28 feet in height. This component includes the robust-stemmed yellow pond lily (*Nuphar advena*) and American lotus (*Nelumbo lutea*). All floating-leaf species (including *Nymphaea* spp.) are **excluded** from the herbaceous component, and are instead included within the open water component (see Submetric 6b).

6a. Vegetative Components Score	

Subtotal

Site:	Rater(s):	Date:

6b. Open Water, Mudflat, and Aquatic Bed Habitats – Maximum 3 points.

Open water is an unobstructed, inundated area of water with few or no rooted emergent or non-tree woody plant species. For KY-WRAM, mudflats are considered areas with exposed mud substrate with little to no vegetation. This metric is designed to evaluate habitat for waterfowl, shorebirds, fish, and other wildlife.

This Habitat Component includes combined acreage from any of the following areas:

- **Small ponds (including farm ponds), streams and/or their floodwaters, pools, saturated sandbars, or other natural or constructed waters**
- **Seasonal standing water areas** (e.g., mudflats and dried-down vernal pools) that were inundated long enough during the growing season to support aquatic life. This includes the "understory" below a forest canopy.
- **Aquatic bed areas** (submerged aquatic vegetation). Aquatic bed is dominated by plants growing at or below the surface of the water for most of the growing season in most years. The KY-WRAM includes aquatic bed within the definition of open water, due to the potential difficulty in differentiating the two entities. For the purposes of the KY-WRAM, all floating-leaf aquatic taxa (e.g. water lilies, *Nymphaea* spp.), are included in the definition of aquatic bed (therefore, are included in the definition of open water).
- **100-foot wide strip of open water along a lake or river** (see Wetland Assessment Area guidelines in the *Guidance Manual*). When the Wetland is adjacent to a lake or large river, calculate the acreage of the 100-foot wide open water strip that is included within the Wetland (see KY-WRAM Wetland Assessment Area Boundary Guidelines). Divide the linear feet of shoreline length by 400. For example, if the vegetated portion of the wetland interfaces with 200 linear feet of a lake, then the extent of the lake's open water included within the Wetland would be calculated as: 200/400 = 0.5 acre. Open water ends where water depth is > 6.6 ft; the Rater may use depth charts to establish this, when available.
- **Shallow pools free of dense shrub canopy** (e.g., open area within an inundated shrub swamp).
- **Shallow pools free of densely-packed herbaceous vegetation** (e.g., open area within a marsh or bog).
- The Indicators below are intended to provide guidance to determine if open water was present **when the wetland is currently dry.**
  - If the wetland is currently dry, use the appropriate USACE Wetland Delineation Regional Supplement to determine if indicators of open water are present (appropriate indicators are listed below).
  - One primary indicator OR two secondary indicators must be present to consider presence of open water. In the section indicated below, describe how you used indicators to determine your score.

Surface Water Present? □ **Yes** – How much? Score below □ **No** – Use indicators below, then assign score

Estimate the total coverage. Choose only 1 category.			**Score**
High:	2.5 acres or more	**3 pts**	
Moderate:	1.0 acre to <2.5 acres	**2 pts**	
Low:	0.25 acre to <1.0 acre	**1 pt**	
Virtually Absent:	<0.25 acre	**0 pts**	

Open Water Hydrology Indicators – Information in parentheses represents US ACE Wetland Delineation Regional Supplement Hydrology Indicators that should be consulted for indicators of open water for the purposes of KY-WRAM.

Check indicators present below:

Primary Indicators (must have 1)	**OR →**	**Secondary Indicators (must have 2)**
☐ Surface Water present on aerial imagery (A1)		☐ Sparsely vegetated concave surface (B8)
☐ Water marks (B1)		☐ Drainage patterns (B10)
☐ Inundation Visible of Aerial Imagery (B7)		☐ Moss trim lines (B16)
☐ Algal mat or crust (B4)		☐ Geomorphic position (D2)
☐ Presence of aquatic fauna (B13)		
☐ Presence of true aquatic plants (B14)		

Describe here how indicators were used to determine score:

Subtotal

Site:	Rater(s):	Date:

6c. Coverage of Highly-Invasive Plant Species – Maximum 1 point.
Estimate the combined total coverage of **any** invasive species present in the wetland.

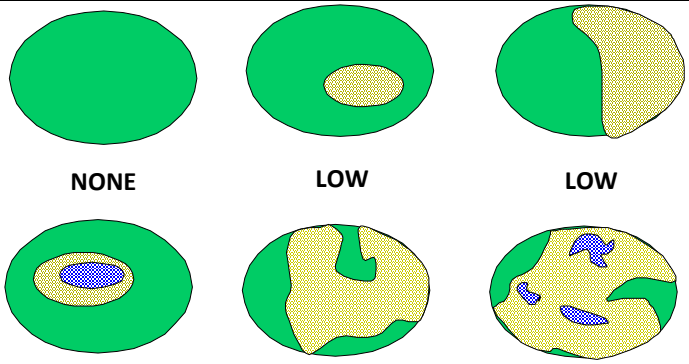
Selected invasive plant species. Remember to include any species found on the KY-EPPC list that is within the assessment area.
(Print the complete KY-EPPC list and take into the field)
*These native invasive plants are being included for the purposes of the KY-WRAM (i.e., everything on the KY-EPPC list are exotics)

- ☐ *Alliaria petiolata* (Garlic Mustard)
- ☐ *Alternanthera philoxeroides* (Alligator Weed)
- ☐ *Conium maculatum* (Poison Hemlock)
- ☐ *Euonymus fortunei* (Winter Creeper)
- ☐ *Lespedeza cuneata, L. bicolor, L. stipulacea, L. striata, L. thunbergii* (non-native *Lespedeza*)
- ☐ *Ligustrum sinense, L. vulgare* (Privet)
- ☐ *Lonicera japonica* (Japanese Honeysuckle)
- ☐ *Lonicera maackii* (Bush Honeysuckle)
- ☐ *Lythrum salicaria* (Purple Loosestrife)
- ☐ *Microstegium vimineum* (Japanese Stilt Grass)
- ☐ *Myriophyllum aquaticum, M. spicatum* (parrotfeather and Eurasion watermilfoil)
- ☐ *Phalaris arundianacea* (Reed Canary Grass)*
- ☐ *Phragmites australis* (Common Reed)
- ☐ *Polygonum cuspidatum* (Japanese knotweed)
- ☐ *Rhamnus cathartica* (Common Buckthorn)
- ☐ *Rosa multiflora* (Multiflora Rose)
- ☐ *Typha ssp.* (Cattail species)*
- ☐ Other(s): specify below

Estimate the total coverage. Choose only 1 category.			**Score**
Virtually Absent:	<1% aerial coverage of invasive species	**1 pt**	
Nearly Absent:	1% to <5% aerial coverage of invasive species	**0 pts**	
Low:	5% to <25% aerial coverage of invasive species	**-1 pt**	
Moderate:	25% to <75% aerial coverage of invasive species	**-3 pts**	
Extensive:	>75% aerial coverage of invasive species	**-5 pts**	

Additional invasive plant species present (list here):

6d. Horizontal (plan view) Interspersion – Maximum 5 points
Evaluate the wetland from a "plan view," i.e., imagine as if you are hovering above the wetland looking down upon it . The figure shows hypothetical wetlands for estimating the amount of habitat interspersion including growing season vegetation communities and open water. Only include open water that is 6.6 feet deep or less and does not include inundated areas below herbaceous and shrub vegetation. If unclear, select **adjoining** options and average the points.



		Score
Wetland has a high degree of interspersion	**5 pts**	
Wetland has a moderate degree of interspersion	**3 pts**	
Wetland has a low degree of interspersion	**1 pt**	
Wetland has no interspersion	**0 pts**	

Subtotal

Site:	Rater(s):	Date:

6e. Microtopographic Features – Maximum 12 points (i.e., 3 points per feature). Choose only one category for each.

1. Hummocks/Tussocks/Tree Mounds, e.g., sedge/grass tussocks, decayed nursery logs (remnants of large logs), root tip-up mounds (uprooted trees), etc. Percent coverage is based on total area of the wetland and includes the depressional matrix within any group of raised features.				**Score**
Absent: 0 pt No features present	Low: 1 pt Present but <1% of the area	Moderate: 2 pts 1% to 5% of the area	High: 3 pts >5% of the area	
2. Large Woody Debris (LWD). per log, average width ≥6 inches (e.g., fallen trees and/or large branches, etc.)				**Score**
Virtually Absent: 0 pt < 1 per acre	Low: 1 pt 1 to 5 per acre	Moderate: 2 pts 6 to 10 per acre	High: 3 pts >10 per acre	
3. Large Snags (≥12 inches DBH).				**Score**
Absent: 0 pt No snags present	Low: 1 pt Present but <1 per acre	Moderate: 2 pts 1 to 5 per acre	High: 3 pts >5 per acre	
4. Amphibian Breeding/Nursery Habitat, e.g., temporary pools with standing water of sufficient duration and depth to support frog and/or salamander reproduction. Permanent areas of vegetated standing water along the edges of ponds, lakes, and some streams also serve as amphibian habitat **(see Manual for description of habitat quality)**.				**Score**
Virtually Absent: 0 pt < 5% of the area	Low: 1 pt Present in small amounts (5% to 10% of the area) but of low to moderate quality	Moderate: 2 pts Present in moderate or greater amounts (>10% of the area) but of low to moderate quality **OR** Present in small amounts (5% to 10% of the area) but of highest quality	High: 3 pts Present in moderate or greater amounts (>10% of the area) and of highest quality	
			6e. Microtopographic Features Score	

Metric 6 Total: add 6a – 6e **(20 points max.)**	**Total Score**

KY-WRAM Summary

Narrative Rating	**Circle One**	
Question 1: USFWS Critical Habitat, Federal T/E Species, or State-ranked (S1, S2, or S3) species present?	YES	NO
Question 2: KSNPC Rare Wetland Community Type Present?	YES	NO
Question 3: Wetland has Scenic, Cultural, or Recreational Value?	YES	NO

Quantitative Rating	**Score**	**Maximum**
Metric 1: Wetland Size and Distribution		9
Metric 2: Upland Buffers and Intensity of Surrounding Land Use		12
Metric 3: Hydrology		29
Metric 4: Habitat Alteration and Habitat Structure Development		20
Metric 5: Special Situations		10
Metric 6: Vegetation, Interspersion, and Habitat Features		20
Total Score =		**100 pts. Max.**

Site:	Rater(s):	Date:

Scoring Comments:

HGM definitions:

RIVERINE: Occur in flood plains and riparian corridors in association with stream channels of any flow regime. Dominant water sources are overbank flow or subsurface hydraulic connections.

DEPRESSIONAL: Occur in topographic depressions. Dominant water sources are precipitation, ground water discharge, and water from adjacent uplands. Water moves vertically.

SLOPE: Occur where there is a discharge of ground water to the land surface. Normally occur on sloping land; gradient may be slight to steep. Water does not pool but flows downslope in one direction.

FLAT: Occur most commonly on historic flood plain terraces – where the channel has incised so deeply that it rarely or never floods onto the flood plain. Main source of water is precipitation, and they have poor vertical drainage. They receive no groundwater discharge, which distinguishes them from depressional and slope wetlands.